THE CONTROL OF WORKPLACE CARCINOGENS

A DISCUSSION PAPER PREPARED BY: THE ADVISORY COUNCIL ON OCCUPATIONAL HEALTH AND OCCUPATIONAL SAFETY

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I. INTRODUCTION

The health of an individual, as has been pointed out in 'A New Perspective on the Health of Canadians'[1], is the product of his or her genetic characteristics interacting with the environment and the individual's lifestyle. Obviously an important part of one's life has to do with one's place of employment, work activities and the materials to which one is exposed in the workplace. The health of workers is a major concern of workers themselves, of employers and of the Ministry of Labour, and the issue of carcinogens in the workplace is one of increasing prominence.

All deaths in the workplace are of concern to society. They are equally serious whether the worker dies of occupationally-induced cancer or as a result of a traumatic accident. Why, then, have carcinogenic substances been chosen for special consideration? The reasons are complex. Although there are many equally fatal diseases, the fear of contracting cancer probably outweighs other fears of this kind. Cancer has a number of unique characteristics which suggest both a reason for the emphasis it receives and a justification for developing a distinct regulatory scheme for carcinogens. As Doll and Peto[2] have recently emphasized, most internal cancers are incurable. There is a high level of uncertainty with regard to the mechanisms involved and the dose-response relationship. The long latent period between the initial exposure and the ultimate appearance of the disease serves to intensify our fears and our feeling of powerlessness.

Perhaps one of the most cogent arguments which can be made in favour of regulating potential new carcinogens lies in the fact that cancer can be prevented by controlling exposure to carcinogens and that such control is feasible. In the case of new chemicals, potential carcinogenicity can be established and appropriate regulations and controls decided upon before the substances become an inextricable part of an operating system or process. Thus, from a practical point of view, there is some justification in singling out new carcinogens for special regulatory treatment. Our enhanced understanding of the causes of cancer and the heightened public awareness in recent years of the need to control the disease, if at all possible, through a program of prevention rather than cure, all tend to reinforce the argument for immediate and specific action in this area. It could well be, of course, that a regulatory model established now for carcinogens should eventually be adapted and applied to the control of other toxic substances which, while non-carcinogenic, have other adverse health effects.

The bulk of the evidence in respect to workplace carcinogens has been obtained by examining the effects on workers' health of past exposures. Since techniques now exist for assessing the potential carcinogenicity of a chemical, it is no longer necessary to rely solely upon evidence produced after exposure, at a stage when it is too late to protect the health of an affected worker. (It is important to keep in mind that very few cancers can be cured by medical treatment once an individual is affected.) This discussion paper addresses the question of how our new knowledge could be applied in the future in order to

minimize the risk of individuals developing cancer because of exposure to workplace carcinogens.

The International Labour Organization, in its Occupational Cancer Convention, 1974[3], made the following statement:

Article 2

1. Each member which ratifies this Convention shall make every effort to have carcinogenic substances and agents to which workers may be exposed in the course of their work replaced by non-carcinogenic substances or agents or by less harmful substances or agents; in the choice of substitute substances or agents account shall be taken of their carcinogenic, toxic and other properties.

2. The number of workers exposed to carcinogenic substances or agents and the duration and degree of such exposure shall be reduced to the minimum compatible with safety.

The need for a rational and integrated system for identifying, assessing and controlling cancer risks (both those associated with current practices and the potential hazards of new chemicals) is widely accepted. There are, however, divergent views as to the best policy to adopt.

Ideally, no human should be exposed to carcinogenic materials at any level. However, given the occurrence of carcinogens in the environment, this ideal is unattainable. Further, the sensitivity of our analytical methods is such that we can often detect chemicals at levels which may be well below those which have detectable biological effects. The difficulties involved in establishing appropriate controls and the principles to be applied may vary according to whether a carcinogen is new or already in use in the workplace. A number of factors will dictate the difference in approach. The economic problems involved in instituting a system of controls for carcinogenic substances which are already in use are obviously much greater than would be the case for new carcinogens. To a large extent also the differences in approach to be adopted, for new versus 'old', reflect another fundamental distinction: the distinction between substances or agents about which we have information and those about which we have little or no evidence as to their carcinogenicity. More information is available on a number of existing carcinogenic substances for the simple reason that epidemiological data have been gathered on populations which have been inadvertently exposed to them. Such data are not available for new substances.

One carcinogenic agent which has been under scrutiny for almost a century now is ionizing radiation. From the beginning, mankind has been exposed to several natural sources of 'background' radiation, including terrestrial and cosmic radiation and radiation from radioactive elements in our bodies.

Occupational exposure to ionizing radiation only became significant late in the nineteenth century with the discovery of x-rays and of radioactivity. The harmful effects of ionizing radiation were very quickly identified.

The nuclear power industry, which is only a small contributor to the total radiation load, is an example of an industry which has been able, over the years, to formulate a consistent approach to worker exposure to a well-known carcinogenic hazard, by balancing a number of economic, social and ethical considerations.

Radiation hazards have been studied for many years and fairly reliable estimates of the attendant risks are available. In the nuclear power industry a philosophy has been developed, as expressed by the International Commission on Radiological Protection (ICRP)[4], aimed at providing a satisfactory level of safety to an exposed group. Basically, there are three principles embodied in this approach: 1) exposure to a toxic agent must be justified by the benefits to society that its use confers, 2) the principle of ALARA which states that we must bring exposures down As Low As Reasonably Achievable, which may mean that they are below the maximum permissible limits. In so doing, judgments about economic and social factors have to be made, and 3) the ICRP endorses the notion of acceptable risk. It proposes maximum permissible exposure limits which are set so that, on average, the risk to a worker is in the range of that experienced in recognized safe industries, such as service industries.

The above approach, although generally accepted within the nuclear power industry itself, is not endorsed by all sectors of society as being an acceptable approach to the hazards involved in the generation of electricity. The argument has been made by some that the approach to radiation hazards is even less appropriate when transferred to new chemicals because of the great disparity in the amount of information available in the two areas. Whereas there is quantifiable evidence on the effects of radiation, there is little or no information on many of the new chemicals being introduced into the workplace. It is not possible, so the argument goes, on the basis of present evidence, to assess the degree of risk in man from exposure to chemicals found to be mutagenic in short-term tests and carcinogenic in animal tests. Chemicals will have to be introduced and exposures monitored for twenty to thirty years before an estimate of risk can be made. At that time it may be possible to determine an 'acceptable' level of exposure. It is argued that no benefit to society can be worth subjecting a workforce to a risk which we are unable to quantify at this stage.

Those who take the position that no increased risk is acceptable, opt for a zero exposure standard. They argue that, in the absence of data on dose-response, and assuming a linear dose-response relationship, in order to ensure zero risk from occupational exposure, there must be zero exposure to workplace carcinogens.

The application of the ICRP philosophy to chemicals which are currently in use is thought by some to be appropriate in certain cases. It can be argued that there are some known

carcinogenic chemicals in use on which there are epidemiologic data of sufficient precision that levels of exposure can be set which comply with the ICRP principles.

The lesson which emerges from such a debate is that in establishing controls for new substances, estimates of risk will generally have to be made without the assistance of epidemiologic data. There is, therefore, an urgent need to ensure that there is a record of the health effects where workers have been inadvertently exposed to carcinogens. The Special Advisory Committee on Carcinogens in its Report[5] discusses the need for epidemiologic surveillance of persons exposed to hazardous substances and the various approaches which can be adopted in gathering epidemiologic evidence[6].

Part of the controversy surrounding regulation of carcinogens is due to misconceptions of the nature of cancer and its causes. It was for this reason that council sought scientific advice from a special advisory committee of experts in the field. This committee was also asked to advise on the various methods of pre-screening for carcinogens.

It should be made clear that, in the discussions which follow, the term 'substance' refers to chemical substances. Although the subject of radiation-induced cancers is dealt with in the Report of the Special Advisory Committee[5], council has not attempted to discuss a possible regulatory approach in this area. It should also be noted that the subject of the potential carcinogenicity of substances produced as by-products of industrial processes has not been addressed in this paper. It was felt that, although the control principles and the basic

philosophy behind the regulatory approach for new chemicals would apply equally to chemical by-products, the testing principles involved could be sufficiently different to warrant treatment in a separate discussion paper.

Although the primary focus of this paper is on potential new carcinogens, consideration is also given to the treatment of existing carcinogens.

Council's mandate is to advise the minister on the adoption of a regulatory scheme for this province. It is noted that in other jurisdictions, carcinogen control programs have been organized on a national scale. While this is obviously a desirable goal for this country also, the political realities in Canada may make it difficult to achieve, at least for the foreseeable future. It must, however, be recognized that any independent action on the part of the Government of Ontario in controlling carcinogens and suspect carcinogens would be of limited effect and could have potentially serious and disruptive economic implications if proposals for regulation were not co-ordinated with existing and anticipated regulatory schemes at the federal and other provincial levels. It is important, therefore, that representations be made to the federal government, calling for assistance in the financing of individual provincial initiatives and for the establishment and co-ordination of a nationwide program. As an essential part of such a program, the highest priority should be given to the objective of assembling and co-ordinating the available data. The task of establishing a nationwide program could be co-ordinated through agencies such as the federal Department of

Labour, the Department of National Health and Welfare and the Canadian Centre for Occupational Health and Safety.

The Issues for Consideration, and some possible approaches to these issues, contained in Chapter 3 of this paper, have arisen out of the deliberations of council and the advisory committee to date. Council is not at this time committed to any particular point of view and will welcome alternative suggestions which will be considered before preparing its advisory memorandum to the minister.

II. AN APPROACH TO THE PROBLEM OF THE IDENTIFICATION AND CLASSIFICATION OF CHEMICAL SUBSTANCES IN THE WORKPLACE AND THE CONTROL OF CARCINOGENS AND SUSPECT CARCINOGENS

The following approach is one which might be adopted by the ministry in the identification, classification and control of carcinogens and potential carcinogens. Other approaches are, of course, possible. The purpose of this outline is to identify issues and generate discussion.

1. New Chemicals

In developing this scheme, council has considered the approach adopted in other jurisdictions, including the European Economic

Community[7] and the policy under consideration in the United States[8]. There appears to be a general acceptance of the philosophy that all new chemicals should be screened and that if any are found to be carcinogens or potential carcinogens, their application in industry should be regulated.

Regulations for the control of carcinogens and suspect carcinogens, to be used in the workplace in Ontario, could be established by the minister, after appropriate public discussion. In reaching his final decision, the minister might wish to consult solely with ministry staff. Alternatively, he might supplement the advice provided by his ministry with opinions offered by an advisory committee or committees[9] struck by the minister, for the purpose of advising on this and other aspects of the regulatory program. Any such committee(s) should be established by the minister after full consultation with all the groups involved in the area. Its membership should be broadly representative of the various groups and its advice should be made public. The committee might be advisory to the minister himself, or to the ministry.

The responsibilities of the advisory committee might include the following:

1) To advise the minister on testing procedures and to approve guidelines for interpreting the results of short-term and animal tests.

2) To offer advice to the minister, in the circumstances described below, on the need for testing, or further testing, of certain chemical substances.

3) To recommend to the minister, in the circumstances described below, the appropriate categories for chemical substances.

4) To make recommendations to the minister with regard to the suitability of substitutes for known carcinogens.

5) To advise the minister on the appropriate regulatory controls for carcinogens and suspect carcinogens.

In deciding upon the appropriate regulatory controls for workplace carcinogens and suspect carcinogens, account should be taken of the risk which each of these agents poses to humans. This assessment should be based in part on the tumor-inducing potency of the compound in animals. Present knowledge, however, does not enable this to be done with any precision and the decisions would have to take note of this uncertainty. In addition, economic and social considerations would have to be weighed in arriving at the appropriate regulatory controls.

A Identification and Classification (See Chart page 31 which summarizes this approach.)

Three categories might be employed:

Category I - Substances confirmed as carcinogens.

Category II - Substances about which there is some uncertainty as to their carcinogenicity.

Category III - Substances which are considered to be non-carcinogenic.

The following steps could be taken in order to ensure that new chemical substances were placed in the appropriate category.

Reporting requirements could be established calling for full disclosure of the possible carcinogenicity of any new[10] substance to be manufactured or imported. Unless these requirements were met by the manufacturer or importer, who would be responsible for providing test results[11], the substance could not be manufactured or imported. (Slightly less stringent requirements could apply in the case of substances to be marketed in quantities of less that one tonne[12] per annum, as discussed below.) Reliable information developed in any external

jurisdiction, concerning the possible carcinogenicity of a substance, would be acceptable.

It is generally considered impractical to attempt to regulate substances which are to be used in very small quantities. A one tonne rule[13] could be applied to all new chemicals which were not considered suspect, as a result of the initial assessment. (See below.) Where such chemicals were to be marketed in quantities of less than one tonne per annum, they should be subject to limited reporting requirements only, except where the competent authority determined that there was a possibility of high risk due to the manner in which the chemicals were to be used. Outline reporting requirements similar to those contained in the United Kingdom Interim Guide to Notification of New Substances could be considered[14].

In developing the information needed to meet the reporting requirements, all new chemicals should be assessed for their chemical structure and relationship to known carcinogens. (Substances should be assessed as used because of the likely presence of impurities.) Where, after the initial assessment, it was determined that the chemical structure of the substance was similar to that of a known carcinogen, where it was known to be subject to tissue accumulation, or where earlier studies suggested that long-term exposure might lead to the development of cancer, the substance should go directly into long-term animal

testing, regardless of the quantities to be used. Where the results of these tests were positive, the substance should be placed in Category I. Where they proved non-positive, the results could be referred to the advisory committee which would advise the minister on whether the substance should be placed in Category II or III.

The placing of a substance in Category III would mean that no surveillance (for carcinogenicity)* would be required, of workers exposed to the substance, and there would be no mechanism provided for detecting errors of judgment on the part of the committee. It would, therefore, have to be made clear that if members of the committee had any doubts whatsoever about the safety of a substance, the appropriate recommendation would be to place it in Category II. The criteria applied by the committee, in recommending appropriate categories and regulatory controls, should be subject to periodic review by the ministry.

Where the initial assessment did not indicate an immediate need for animal tests, (and the developers themselves did not decide to have the substances subjected to animal testing at that stage) all new chemicals to be marketed in quantities of one tonne per annum or more, should be subjected to short-term tests.

If the results of the short-term tests were positive, or conflicting, the substance should automatically undergo

* - see page 25, Issue #7(9).

long-term animal tests. Positive results from the long-term tests would place the substance in Category I. Non-positive results could be referred to the advisory committee for ultimate classification in Category II or III, as discussed above.

If the results of the short-term tests were non-positive, the manufacturer or user should have the option of either putting the substance into long-term animal tests or having it referred to the advisory committee. If the manufacturer chose to go directly to animal tests, the substance would be classified as follows. If the results proved positive, the substance would be placed in Category I. If the results were non-positive, it would be placed in Category III.

If the matter were referred to the advisory committee, the substance might ultimately be placed in Category I, II or III. The committee might feel that the results of the short-term tests were sufficiently clear to permit it to recommend that the substance be placed in Category II or III, after duly considering this evidence and other relevant factors. However, if the committee felt that further information was needed, it might recommend that long-term animal tests be required, after which the substance would be placed in Category I if the tests proved positive, and in Category III if they proved non-positive.

Where a compound was generally regarded as a non-carcinogen, or where it was a 'variant' of a safe compound, it would be placed in Category III.

The ministry should make available to the public an index of new substances showing the categories in which they had been placed. The data base which had led to the categorization should be made available for public scrutiny. A review of the provisions of section 34(1)(b) of The Occupational Health and Safety Act might be required, in order to determine whether it would be in the public interest to maintain confidentiality in the case of substances categorized as carcinogens or suspect carcinogens.

B Regulatory Control Measures

A number of possible measures for the control of Category I and II substances are set out in the Issues for Consideration, beginning at page 24. Basically, the approach might be as follows:-

Category I - Where there is certainty that a substance is a carcinogen, its use would be regulated.

Category II - Substances about which there is some uncertainty as to their carcinogenicity would be controlled as suspect carcinogens.

Category III - Substances which are considered to be non-carcinogenic could be used without surveillance or restrictions unless such measures were required for other purposes.

The establishment of testing requirements and regulatory controls must be accompanied by an effective means of enforcement. One method of ensuring compliance is through a permit or licensing system, whereby no carcinogen or suspect carcinogen can be used unless duly authorized by the competent authority[15]. The licensing system for radioactive isotopes might serve as a model.

The actual day to day monitoring of the use of new substances can only occur in the workplace itself. Employers should be required to disclose to the joint health and safety committees, or to the workforce where no committees are established, information about new chemicals and possible hazards. All containers in use should be meaningfully labelled with highly visible, colour coded indications of carcinogenic hazard.

If a new substance was introduced without appropriate disclosure, members of the joint health and safety committee, or of the workforce, should ask management to make the information available. If management failed to do so, members of the committee, or of the workforce, should have the right to ask the government to take appropriate action, which might entail the imposing of a suitable financial penalty. Some have even

considered the idea that offending parties should lose their protection from civil liability under the Workmen's Compensation Act, if problems subsequently arose.

Where a company introduced a known or suspect carcinogen into the workplace and failed to meet acceptable standards, the company could be liable to a penalty in excess of those currently available under section 37(1) of The Occupational Health and Safety Act.

2. Chemicals Not Considered New

Substances which were not new - i.e. those on the Environmental Protection Agency (EPA) list or those currently in use in Ontario - should, where appropriate, be subject to the above testing procedures unless sufficient data were already available for them to be accurately categorized. The ministry, in consultation with the advisory committee, should determine which of the substances on the EPA list or currently in use in Ontario have not been adequately assessed for their potential carcinogenicity. Priorities should be set for testing of such substances. Expenses of such testing should be borne by the manufacturer of a substance currently in use in Ontario.

The ministry should make a systematic attempt to have the substances on the EPA list and those currently in use in Ontario properly categorized within a period of five years. It would probably be advisable for the ministry to do this in collaboration with other jurisdictions or organizations, such as the International Labour Organization.

Where a chemical which was not considered new was to be used in a newly-constructed plant*, it should be automatically subject to the same testing and classification procedures as employed for new chemicals.

Where it was determined, on the basis of reliable evidence produced in this or other jurisdictions, that a substance which was not considered new should be placed in Category I, where it was sufficiently beneficial to justify its continued use and no suitable replacement was available, it should be subjected immediately to regulatory controls. Where the substance was to be used in a new plant these controls would be the same as those employed for new substances. Similarly, for substances placed in Category II, regulatory requirements should vary depending upon whether the substance was to be used in an existing plant or whether a new plant was to be built. In the latter case, appropriate regulatory controls should be instituted immediately. Where these substances were used in existing plants, somewhat less stringent regulatory controls would apply for an initial period. After five years all users of Category I or II substances, whether in existing or new plants, should be required to meet the standards adopted for new substances.

Provision should be made for the relaxation of the above regulatory requirements in order to permit research and other activities where appropriate exemptions are warranted.

* - either built from ground up or converted for different purposes.

III. ISSUES FOR CONSIDERATION

Council now sets forth some of the issues which have been raised in the course of its recent deliberations. While recognizing that this list of issues may be incomplete, council believes that the answers to these questions will be of fundamental importance in establishing an effective policy for the control of workplace carcinogens.

Issue # 1 - National and International Co-ordination and Co-operation in the Control of Carcinogens

1) Should representation be made, through the appropriate channels, to the federal government calling for assistance in the financing of individual provincial initiatives and for the establishment and co-ordination of a nationwide carcinogen program, through agencies such as the federal Department of Labour, the Department of National Health and Welfare and the Canadian Centre for Occupational Health and Safety?

2) As part of a national program, should the federal government or national agency be encouraged to give the highest priority to the objective of assembling and co-ordinating the available data from this and other jurisdictions, with regard to the carcinogenicity and potential carcinogenicity of chemical substances?

3) In establishing priorities for the testing of chemicals and in deciding upon appropriate regulatory controls for carcinogens and suspect carcinogens, should the Ontario Ministry of Labour work in close collaboration with international organizations such as the International Labour Organization? Should due regard be paid to international agreements such as the ILO 'Convention concerning prevention and control of Occupational Hazards caused by Carcinogenic Substances and Agents'?

Issue # 2 - Advisory Committee(s)

Should an advisory committee(s) be established with the responsibility for advising the minister (or the ministry) on all aspects of the regulatory program for carcinogens? In particular, should the advisory committee make recommendations with regard to the appropriate categories and regulatory controls for chemical substances? Should the criteria applied by the committee be subject to periodic review by the ministry?

Issue # 3 - Reporting Requirements for New Chemicals

1) Should the minister establish reporting requirements for full disclosure of the possible carcinogenicity of any new chemical

to be introduced into the workplace in Ontario?

2) Should limited reporting requirements apply to new chemicals to be marketed in quantities of less than one tonne per annum unless, after an initial assessment, (see Issue #4) they were considered suspect?

Issue # 4 - Testing Requirements for New Chemicals

1) Should the minister establish regulations calling for the examination of all new chemicals on the basis of their chemical structure and relationship to known carcinogens?

2) Following such initial assessment, should all new chemicals (with the exception noted in #3 above) be subject to testing requirements as outlined on pages 12-16 above?

Issue # 5 - Testing Procedures

(For further details see pages 170-171 of the Report of the Special Advisory Committee on Carcinogens.)

1) Should a standard testing program be developed by the ministry in consultation with the advisory committee?

2) If such a program were to be developed, should it incorporate any or all of the following requirements:-

a) Where long-term animal tests were required, should the procedure outlined in the National Cancer Institute (USA) "Guidelines for Carcinogen Bioassay in Small Rodents", 1976, be followed?

b) Where required, should a minimum of two appropriate short-term tests be conducted on a substance?

c) Should such tests be carried out on commercial samples of chemicals rather than on purified preparations (or in addition to)?

d) Should the formal testing requirements, both for long-term animal tests and for short-term in vitro tests, established by the ministry, be reviewed every three years?

Issue # 6 - <u>The Classification of New Chemicals</u>

Should all new substances be placed in Categories I (carcinogens), II (suspect carcinogens) or III (non-carcinogenic) according to the criteria set out on pages 12-16 above?

Issue # 7 - <u>The Control of New Chemicals</u>

If the classification scheme referred to in Issue #6 is thought to be appropriate, should the following measures be adopted:

1) Where a substance is placed in Category I, should its use be regulated?

2) Where a suitable substitute for a Category I substance is available for one or more uses, should occupational exposure to the Category I substance be permitted for those uses?

3) Where it is determined that a Category I substance is needed and that no suitable substitute is available, should its use be permitted, with the requirement that there be no detectable exposure of the workforce, or should permissible exposure limits be set?

4) Should Category II substances be treated as suspect carcinogens?

5) Should permissible exposure limits be set for Category II substances?

6) Should the appropriate standards for Categories I and II substances be met through the use of engineering and workpractice controls?

7) Should the use of personal protective equipment be reserved for maintenance purposes and for emergency use only?

8) Should suitable epidemiological surveillance be maintained of workers exposed to Categories I and II substances?

9) Should the use of Category III substances be permitted without surveillance or restrictions unless such measures were required for other purposes?

Issue # 8 - <u>The Testing and Classification of Chemicals Not Considered New</u>

1) Should the ministry, in consultation with the advisory committee, determine which of the substances on the EPA list or currently in use in Ontario have not been adequately assessed for their potential carcinogenicity?

2) Should priorities be set for testing of such substances?

3) Where it is considered necessary to test a substance currently in use in Ontario, should the cost of such testing be borne by the manufacturer?

4) Where a chemical which is not considered new is to be used in a newly-constructed workplace, should it be automatically subjected to the same testing and classification procedures as employed for new chemicals?

5) Should the ministry make a systematic attempt to have the substances on the EPA list and those currently in use in Ontario properly categorized, according to the classification system outlined above, within a period of five years, making full use of information developed in other jurisdictions?

Issue # 9 - <u>The Control of Chemicals Not Considered New</u>

1) Where a chemical, not considered new, is placed in Category I, where it is sufficiently beneficial to justify its

continued use and no suitable replacement is available, should it be treated as follows:-

a) When used in a new plant, should it be subjected immediately to the same regulatory controls as are employed for new substances?

b) When used in an existing plant, should it be subjected immediately to appropriate regulatory controls?

2) Where a chemical, not considered new, is placed in Category II, should it be treated as follows:-

a) When used in a new plant, should it be subjected immediately to appropriate regulatory controls?

b) When used in an existing plant, should it be subjected to somewhat less stringent regulatory controls for an initial period?

3) After an initial period of five years, should all users of chemicals which are not considered new be required to meet the standards set for new chemicals, regardless of whether the substances are to be used in new or existing plants?

Issue #10 - Epidemiologic Surveillance

1) Should the minister ensure that appropriate epidemiologic surveillance be provided where individuals are known to have been exposed to established or suspect carcinogens?

2) Should employers be required to establish group and individual exposure records suitable for epidemiologic surveillance?

3) Should the minister seek to ensure that appropriate resources are made available to the Ontario Cancer Treatment and Research Foundation in order to guarantee continuance of the Ontario Cancer Registry?

Issue #11 - The Provision of Information to the Workforce and to the Public

1) Should the ministry ensure that members of joint health and safety committees, or members of the workforce where no committees are established, are provided with information, not only on potential hazards but also concerning the chemical structure of any new substance, regardless of whether it is considered by the employer to be safe?

2) Should the ministry establish a procedure to ensure that details of the chemical structure and health effects produced by a new substance are available to the joint health and safety committee (or the workforce), in the event that management fails to provide this information?

3) Should the minister urge the governments of Canada to work with industry, with workers and with the Canadian Centre for Occupational Health and Safety to develop a labelling and colour-coding system which would alert users and members of the workforce to the presence of a carcinogen or suspect carcinogen in any substance to be used?

4) Should the minister make available to the public an index of new substances showing the categories in which they have been placed? Should the data base which has led to this categorization also be made available for public scrutiny?

5) Should the confidentiality provisions of section 34(1)(b) of the Act apply in the case of carcinogens, or should there be full disclosure of all available information to the workforce and to the public?

Issue #12 - Penalties for Non-Compliance With The Regulation

Should an employer who introduces a known or suspect carcinogen into the workplace and fails to meet acceptable standards be liable to a penalty in excess of those currently available under section 37(1) of The Occupational Health and Safety Act?

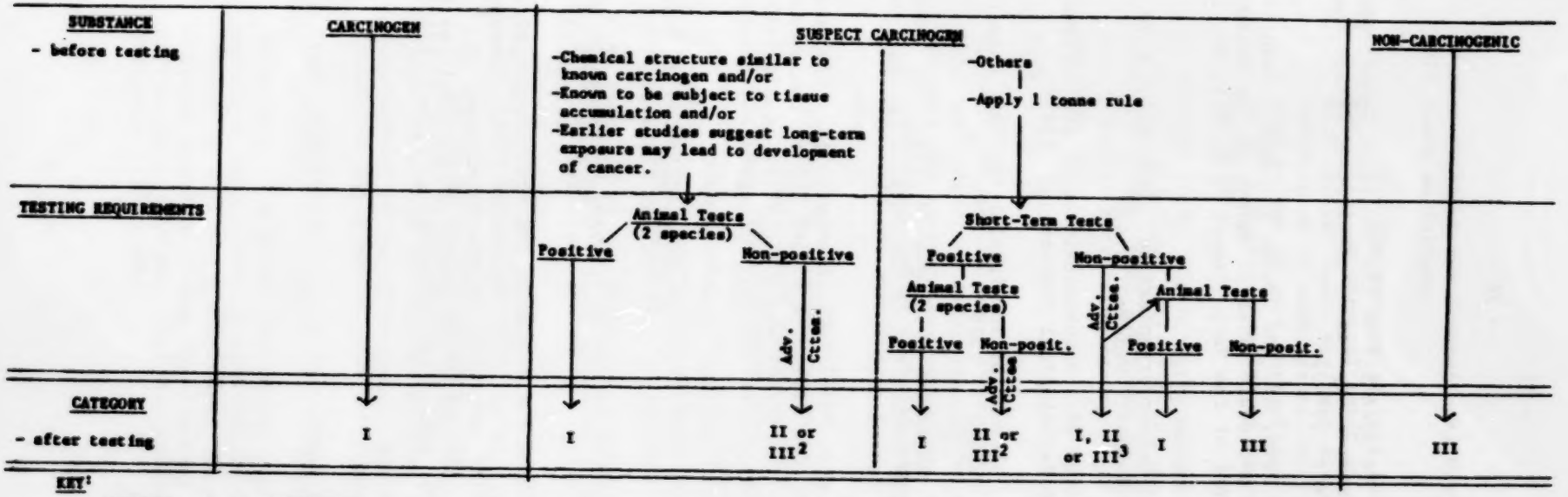
Issue #13 - Research

Should provision be made for the relaxation of the regulatory requirements in order to permit research in the following areas:-

a) research targetted toward the development of new chemicals?

b) medical research involving the use of carcinogens for scientific or therapeutic purposes?

CLASSIFICATION OF SUBSTANCES IN THE WORKPLACE [1]



KEY:

CATEGORY I - CARCINOGEN
CATEGORY II - SUSPECT CARCINOGEN
CATEGORY III - NON-CARCINOGENIC

Footnotes:

1. For detailed discussion, see pages 12-16.
2. Depending upon recommendation of advisory committee and decision of minister.
3. As in 1 above, advisory committee recommends either Category II or III. Committee might, where appropriate, recommend that animal tests be required. Positive results of these tests would place the substance in Category I; non-positive results would place it in Category III.

Footnotes

1. Lalonde, M. Perspective on the Health of Canadians. A working document. Department of National Health and Welfare, Ottawa (1974).

2. Doll, R. and Peto, R. The Causes of Cancer: Quantitative estimates of avoidable risks of cancer in the United States today. Journal of the Natl. Cancer Inst. Vol. 66: 1191-1308 (1981).

3. International Labour Organisation. Convention #139 on Occupational Cancer. Geneva, 1974.

4. ICRP Publication 26. Recommendations of the International Commission on Radiological Protection. (1977).

5. See attached. Report of the Special Advisory Committee on Carcinogens. April 7, 1982.

6. One important source of such data in Ontario is the Ontario Cancer Registry maintained by the Ontario Cancer Treatment and Research Foundation.

7. Council Directive 79/831/EEC, September 18, 1979, amending for the sixth time Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.

8. Identification, Classification and Regulation of Potential Occupational Carcinogens. 45 Federal Register, 5001 (1980).
   See also: Advance Notice of Proposed Reevaluation of Carcinogens Policy. 47 Federal Register, 187 (1982).

9. Council has given its advice on the constitution of such advisory groups in Advisory Memorandum 79-II, Concerning the Role of Advisory Committees in the Development of Regulations. Second Annual Report of the Advisory Council on Occupational Health and Occupational Safety 1978-79 p.67-74.

10. Section 21(3) of the Occupational Health and Safety Act, 1978 reads as follows:

> 'For the purpose of this section, "new biological or chemical agent or combination of such agents" means any such agent or combination of such agents other than those used in one or more work places and included in an inventory compiled or adopted by the Ministry.'

In January, 1981, the ministry announced the adoption of the Chemical Substances Initial Inventory, together with the Cumulative Supplement published by the Administrator of the Environmental Protection Agency of the United States of America.

Note

Bill 110, An Act to amend the Occupational Health and Safety Act, which received first reading on May 14th, 1982, proposes the re-enactment of Section 21(3). The effect of this amendment would be that the provisions of Section 21(1) with regard to new substances would not apply to the following:

(a) agents, whether in combination or not, used in one or more work places in Ontario on or before the 1st day of October, 1979; or

(b) agents, whether in combination or not, mentioned in an inventory compiled or adopted by order of the Minister.

11. See page 170 of the Report of the Special Advisory Committee on Carcinogens for suggestions as to the type of tests to be employed.

12. One metric ton = 1.023 tons.

13. See, for example, the provisions with regard to substances to be placed on the market in quantities of less than one tonne, contained in: United Kingdom Interim Guide to Notification of New Substances. Health and Safety Executive; Department of the Environment. September, 1981.

14. Ibid. Substances Subject to Limited Announcement.

15. An example of a permit system for the regulation of workplace carcinogens is provided in Ordinance AFS 1981:8, concerning Hygienic Limit Values, issued by the Swedish National Board of Occupational Safety and Health, under the provisions of Section 18 of the Working Environment Ordinance (1977:1166).